

What is claimed is:

1. A display device comprising:

an optical region consists of a plurality of first parts each formed of a plurality of dyestuff molecules which are aggregated thereat and a second part including derivatives of the dyestuff molecule,

wherein the plurality of first parts are distributed in the second part separately, and

the derivatives of the dyestuff molecule are soluble in one of solvents which the dyestuff molecule itself is insoluble.

2. The display device according to claim 1, wherein the solvent is a hydrophobic organic solvent.

3. The display device according to claim 1, wherein the one of solvents is cured to be utilized for a binder material of the optical region, the plurality of first parts are distributed in the one of solvents being cured while the derivative of the dyestuff molecules are dissolved therein in the second part.

4. The display device according to claim 1, wherein the derivatives of the dyestuff molecule are converted to the dyestuff molecules by transferring energy thereto.

5. The display device according to claim 4, wherein the energy is transferred to the derivatives of the dyestuff molecule by at least one process selected from a group consisting of heat treatment applied to the derivatives, light irradiation thereto, electromagnetic waves irradiated thereto, plasma treatment thereof, and ion implantation applied thereto.

6. The display device according to claim 5, wherein a pattern of the plurality of first parts formed in the optical region is variable in accordance with the selection of the at least one process for transferring the energy to the derivatives of the dyestuff molecule and an amount thereof.

7. The display device according to claim 5, wherein the optical region has a principal surface and evenness of the principal surface depends on the selection of the at least one process for transferring the energy to the derivatives of the dyestuff molecule and an amount thereof.
- 5 8. The display device according to claim 1, wherein the derivatives dissolved in the second part of the optical region are classified into at least two kinds obtained by chemical modification of at least two kinds of dyestuff molecules respectively, and
the dyestuff molecules aggregated at the plurality of first parts of the optical region belong to one of the at least two kinds of dyestuff molecules.
- 10 9. The display device according to claim 1, wherein the dyestuff molecules aggregated at one group of the plurality of first parts of the optical region have different molecular structure from those of the rest of the dyestuff molecules aggregated at another group of the plurality of first parts.
10. The display device according to claim 1, wherein each of the dyestuff molecules
15 has at least one nitrogen atom therein, and the derivatives are obtained through chemical modification of the dyestuff molecules by combining a substituent to the at least one nitrogen atom belonging thereto.
11. The display device according to claim 1, wherein the optical region is provided as a functional film having a principal plane for the display device.
- 20 12. The display device according to claim 11, wherein the plurality of first parts are distributed in the principal plane of the optical region, and
respective sizes of the plurality of first parts are varied gradually along a direction extended from one side of the principal plane to another side thereof opposite to the one side thereof.
- 25 13. The display device according to claim 1, wherein the optical region is an optical component assembled in the display device and has a principal surface transverse to a optical path extended from the display device.

14. The display device according to claim 1, wherein each of the plurality of first parts in the optical region is shaped into a nanofine particle each having a grain size not greater than 70nm.
15. A display device comprising:
5 an optical region containing a plurality of pigment grains each formed by a plurality of pigment molecules encapsulated in an inorganic material,
wherein each of the plurality of pigment grains has a grain size not greater than 70nm.
16. The display device according to claim 15, wherein the plurality of pigment
10 molecules are aggregated in each of the plurality of pigment grains.
17. The display device according to claim 16, wherein each of the plurality of pigment molecule is an organic compound having at least one nitrogen atom therein.
18. The display device according to claim 17, wherein each of the plurality of pigment molecules is modified chemically to be soluble in an organic hydrophobic
15 solvent before encapsulation thereof in the inorganic material, and
the chemically modified molecular structure thereof is converted into an original molecular structure thereof by energy transfer.
19. The display device according to claim 15, wherein the inorganic material is silica.
20. A display device comprising:
20 a plurality of pixels each having a light emitting layer formed of an organic material,
wherein the light emitting layer contains a plurality of pigment grains distributed in the organic material, and each of the plurality of pigment grains is formed
25 of a plurality of dyestuff molecules aggregated or polymerized therein.
21. The display device according to claim 20, wherein each of the plurality of pigment grains has a grain size not greater than 70nm.